Effects from Invasive Plants: a short list June 2011

Shawna L. Bautista, Forest Service, R6 Invasive Plants, Portland, OR

Impacts from invasive plants that have been reported in peer-reviewed literature or are evident on our forests include:

- radical changes in fire frequency, leading to type conversions of habitat (cheatgrass, Arundo) (D'Antonio and Vitousek 1992; Mack 1981; Randall 1996; Whisenant 1990)
- changes in nutrient cycling (cheatgrass, knotweed) (Sperry, Belnap, and Evans 2006; Sweeny 1993)
- direct mortality to wildlife (common burdock traps bats and hummingbirds, Raloff 1998; hydrilla hosts a cyanobacteria fatal to waterfowl and bald eagles, Wilde et al. 2005)
- injury and mortality from 'foxtails' (McCrary and Bloom 1984).
- barrier to salmon migration (blackberry on the Columbia River Gorge tributary within the National Scenic Area)
- toxicity to livestock (tansy ragwort, yellow starthistle)
- loss of forage quality and quantity for big game (leafy spurge, knapweeds, yellow starthistle) (Bedunah and Carpenter 1989; Rice et al. 1997; Trammell and Butler 1996)
- converting river islands from diverse wildflower and native shrub community to a monoculture, increasing sedimentation, and reducing winter cover for juvenile salmon and trout (ribbongrass on the Metolious River)
- invasive shrubs acting as a population sink for native birds due to increased predation of nests within invasive shrubs (buckthorn) (Chew 1981, Schmidt and Whelan 1999)
- Invasive shrub dominated forests provide less habitat for butterflies than non-invaded habitats (Hanula and Horn 2011).
- changes in stream and river hydrology (knotweed, blackberry; Talmadge and Kiviat 2004)
- loss of nesting habitat and increased nest predation on endangered snowy plovers (European beachgrass)
- loss of native bird diversity with increase in exotic plants (Mills et al. 1989, Germaine et al. 1998)
- reduction in availability of surface water (Brotherson and Field 1987; Dudley 2000; Horton 1977)
- disruption of rumen microbial activity resulting in reduced food consumption (Olson, 1999)
- loss of suitable nesting habitat for threatened pond turtles (Scot's broom, blackberry in the Columbia River Gorge NSA)
- fewer and less diverse populations of mammals, reptiles, and amphibians (tamarisk; Jakle and Gatz 1985; Olson 1999)
- Invasion by purple loosestrife makes habitat unsuitable for numerous birds, reptiles and mammals (Blossey et al. 2001; Kiviat 1996; Lor 1999; Rawinski 1982; Thompson, Stuckey, and Thompson 1987; Weihe and Neely 1997; Weiher et al. 1996)
- Purple loosestrife competes for pollinators resulting in reduced seed set in native Lythrum species and other native plants (Brown et al. 2002; Grabas and Laverty 1999).
- Loss of suitable habitat for Oregon spotted frogs from reed canarygrass (Cushman and Pearl 2007, White 2002, Watson et al. 2003)

- Meadusahead increases fire frequency and intensity, depletes soil moisture in spring, fills in sage grouse leks making them unsuitable, reduces availability of forbs and insects for sage grouse chicks, compromises restoration efforts, reduces grazing capacity by 74% (pers. com. from USFS, BLM, ID Dept. of Ag., CA Dept. of Ag. personnel 2009)

Effects of Japanese knotweed include:

- …damage to paving and tarmac areas; damage to flood defense structures ; damage to archaeological sites; reduction of biodiversity through shading of native vegetation; restriction of access to riverbanks for anglers, bank inspection and amenity use; reduction in land values; increased risk of flooding through dead stems washed into river and stream channels; increased risk of soil erosion and bank instability following removal of established stands in riparian areas; accumulation of litter in well established stands; aesthetically displeasing; and expensive to treat (Japanese Knotweed Alliance 1999).
- Knotweed leaf and stem detritus might affect the food base for trout and other stream fishes (Sweeny 1993);
- Reduces Nitrogen input into streams, reduces abundance of understory herbs, shrubs, and juvenile tress (Urgenson and Reichard 2007)
- Reduces foraging success of green frogs (Rana clamitans) in invaded sites, alters vegetative composition and structure (Maerz, Blossey, and Nuzzo 2005).
- Alters leaf-litter dwelling invertebrate community, greatly decreasing snail densities, species richness, and diversity, and decreasing abundance of Isopods, while increasing abundance of detritivores and predatory; invaded soils had lower pH and potassium depletion Opiliones (Kappes, Lay and Topp 2007).

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